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ABSTRACT

Three commonly used informal reading inventories were examined to determine the extent to which their comprehension test questions were passage independent, and could be answered correctly without reading the passages on which they were based. Fourth graders were given the questions orally without access to the passages. The percentage of questions answered correctly was calculated for each test. An analysis of variance procedure revealed that the Classroom Reading Inventory was the most passage independent followed by the Analytical Reading Inventory and Ginn 720 basal inventory respectively. An analysis of children's responses to the questions revealed that three question types in particular tended to be passage independent in nature. These question categories were: (1) general information; (2) vocabulary meaning; and (3) affective. The investigation also examined the degree to which the respective inventory comprehension questions provided inflated estimates of the children's reading comprehension abilities. (Author/GK)

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A PASSAGE INDEPENDENCY ANALYSIS OF THREE INFORMAL READING INVENTORIES

Three commonly used informal reading inventories were examined to determine the extent to which their comprehension test questions were passage independent, could be answered correctly without reading the passages on which they were based. Fourth graders were given the questions orally without access to the passages. The percentage of questions answered correctly was calculated for each test. An analysis of variance procedure revealed that the Classroom Reading Inventory was the most passage independent followed by the Analytical Reading Inventory and Ginn 720 basal inventory respectively. An analysis of children's responses to the questions revealed that three question types in particular tended to be passage independent in nature. These question categories were: a) general information b) vocabulary meaning and c) affective. The investigation also examined the degree to which the respective inventory comprehension questions provided inflated estimates of the children's reading comprehension abilities.

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A PASSAGE INDEPENDENCY ANALYSIS OF THREE INFORMAL READING INVENTORIES

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Reading specialists and classroom teachers commonly administer informal reading inventories (IRIs) to assess a student's strengths and weaknesses in reading. These inventories are also used to identify a general level of reading proficiency for placement in appropriate instructional materials. If teachers are to have confidence in the quality of these assessments and subsequent instructional decisions, they need to be certain that the measures they are using are valid.

Informal reading inventories provide a number of estimates including sight word vocabulary, oral reading accuracy, fluency, rate and comprehension. The latter was of particular interest in this investigation. Typically reading comprehension refers to an individual's ability to understand text. In recent years considerable attention has been given to passage independency, the extent to which questions can be answered correctly without reading the passages on which they are based (Johns, 1978; Pyrczak, 1972,1974). If test questions can be answered without reading the corresponding passages, it is argued that the test does not really measure reading comprehension, but rather prior knowledge. Thus, an adequate comprehension score may not reflect the extent to which a student has understood the passage, but merely his/her ability to remember information about the topic.

Researchers have found that several commonly used comprehension tests are in fact passage independent. Preston (1964), Tuinman (1973-1974), and Scherick and Hanna (1977) examined standardized reading achievement tests such as the Nelson Denny Reading Skills Test and the Cooperative English Test and found that students were able to answer comprehension test questions above the chance level without reading the corresponding paragraphs. Allington, Chodos, Domaracki and Truex (1977) found similar results when examining four diagnostic reading tests: the Spache Diagnostic Reading Scales, the Durrell Analysis of Reading Difficulty and the Gilmore and Gray Oral Reading Tests. Reading comprehension exercises including the Readers Digest Skill Builder series and the McCall-Crabbs Standard Lessons in Reading have also been found to be passage independent (Pyrczak & Axelrod, 1976). In light of these findings it has become increasingly apparent that questions can in fact be passage independent thus reducing their validity as a measure of comprehension. The intent of the present study was to evaluate the passage independency of questions taken from three commonly used informal reading inventories: the Classroom Reading Inventory (CRI) Form B, Fourth edition by Silvaroli (1978), the Analytical Reading Inventory (ARI) Form C, by Woods and Moe (1977) and the Ginn 720 basal inventory (Ginn and Company, 1976). To date this type of IRI evaluation has not been undertaken. A second focus of the study was to identify passage independent question types; therefore, an analysis of student responses to specific questions was conducted.

Method

Subjects

Thirty-six fourth grade students from a rural school in upstate New York participated in the study. They were stratified randomly into one of three IRI test groups wherein there was an equal number of good and poor readers. Reading ability was determined by performances above or below grade level on both vocabulary and comprehension subtests of the Iowa Test of Basic Skills.

Procedure

All children were tested individually using a randomly selected form (A,B or C) of each inventory. Test questions were read orally to the children according to the inventory test procedures. However, children did not have access to the passages from which the questions were derived. The order for presenting questions within each level (primer through sixth grade) was maintained as in the original inventories, but the levels were presented in one of two randomized orders to avoid making the testing task one of increasing difficulty for the students. Children's responses to the questions were tape recorded and later transcribed for evaluation.

Results and Discussion

Due to the unequal number of questions contained in the three inventories, the percentage of items answered correctly was determined for each test. An analysis of variance procedure was conducted to determine if these percentages were in fact significantly different from one another. The results indicated that performances across the three tests were different, $F(2,30) = 15.668$, $p \leq .001$. The CRI was found to be the most passage independent ($\bar{X} = 26.273$) followed by the ARI ($\bar{X} = 17.455$) and Ginn inventories ($\bar{X} = 11.455$) respectively. Newman-Keuls post hoc contrasts revealed that each of these mean percentage scores were significantly different from one another. These results point out that although all three tests were found to be passage independent to some degree, the CRI contained the greatest number of passage independent questions (26%) and the Ginn inventory the fewest (11%). Thus, the extent to which comprehension scores could be inflated on these tests varied significantly.

An item analysis revealed two interesting types of information: 1) the number of children able to test out of a particular reading level by answering passage independent questions correctly and 2) the types of questions which were passage independent in nature.

On the comprehension subtest of the CRI, an instructional reading level cutoff score is 60% correct. An item analysis revealed that at level #1 of the test, 50% of the children passed the instructional reading level criterion without ever reading the passages. At levels #2 and #4, 25% of the students passed the criterion score. Based upon these percentages one could predict that if one hundred children were tested, fifty would test out of level #1 and twenty-five out of levels #2 and #4 without reading the passages. These findings lend considerable question as to the validity of this comprehension measure.

The number of children passing the criterion score for the ARI and Ginn inventories was considerably less. On the ARI approximately 33% of the students scored above criterion at level #2 without reading the paragraphs. However, they did not test out of the other grade levels on this inventory. On the Ginn inventory, two children passed the criterion score at level #5; while at levels #6 and #9 only one child was able to meet the criterion without reading the corresponding paragraphs.

Of the three tests examined the CRI appears to be the least valid measure of text comprehension. It not only contains the greatest number of passage independent questions which results in students passing comprehension criterion levels without ever reading the passages. It also provides the teacher with an inflated estimate of the student's comprehension ability and thus increases the probability that the student will be placed in instructional materials at an inappropriate level of difficutly.

Examination of the types of questions which were passage independent reveals some definite patterns. The questions listed in Table 1 tend to fall into three

/ Insert Table 1 About here /

general categories: 1) general information 2) vocabulary meaning 3) affective. The general information questions appear to tap information about familiar topics or prior experiences as evidenced by the questions: Where do ants live? What are

some ways of travel found today? and Why did people run from the bulls? The vocabulary questions contain words or phrases already a part of the student's oral vocabulary (e.g. busy, chase, fight back the tears). Hence a student does not have to read the passages to derive the word meanings. Questions in the affective category may elicit a word association such as that between no and sad or feel and good which could account for the number of correct responses. Samuels (1968) notes that strength of word association is often a salient feature in children's guessing behavior. Examples of questions in this category include: How did the children feel? and How do you think Mike felt when mother said no? These data suggest that the type of question asked can signal the extent to which it might be passage independent.

Conclusion

An evaluation of these three informal reading inventories has pointed out significant differences between and among the tests with regard to passage independence, characteristics of passage independent questions and the potential to inflate composite comprehension scores. While a passage independency analysis appears necessary in evaluating the validity of reading comprehension tests, it is not sufficient. As Hanna and Oaster (1978-1979) point out, passage independence is not the complement of passage dependence. That is, an item which cannot be answered correctly when the passage is not read may not be able to be correctly answered after reading the passage. Hence, in the construction of future comprehension tests or the revision of existing measures, authors will want to thoroughly evaluate test questions to identify both passage dependent and independent characteristics. Certainly the best way to identify these characteristics is to pilot the passages and questions on a prototypical population of students for which the test is designed. The present investigation completes the passage independency facet of this evaluation process.

TABLE 1

PASSAGE INDEPENDENT TEST QUESTIONS

Test	Level	% Correct Response[a]	Question
CRI	P	75	How did the children feel?
"	1	100	Where do ants live?
"	1	70	What does the word "busy" mean in the story?
"	2	79	Why did the people run the bulls?
"	2	75	What does the word "chase" mean?
"	4	75	What made riding in a conestoga wagon unpleasant?
"	4	91	What are some ways of travel found today?
ARI	2	79	What is meant by the phrase "fight back the tears?"
Ginn 720	5	92	How do you think Mike felt when mother said no?
"	6	92	Do the animals like living in the tree?
"	6	83	What do you think the blackbird will do with the hat?
"	11	75	What kind of person do you think Mr. Green is?

[a] n = 12

Note. Only questions which 70% or more of the students answered correctly were reported.

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